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IPVENTURE, INC. 5150 EL CAMINO REAL SUITE A-22 LOS ALTOS, CA 94022				
			EXAMINER PENDLETON, DIONNE	
			ART UNIT 2615	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/826,527

Applicant(s)

CHEUNG ET AL.

Examiner

Dionne H. Pendleton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) n/a is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Attachment(s) 3. Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :1/12/07;8/11/05;2/22/05;1/21/05.

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## DETAILED ACTION

### *Election/Restrictions*

Applicant's arguments with respect to the Election/Restriction have been fully considered. The Election/Restriction has been withdrawn.

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, ***the "computing unit" as recited in claims 22 and 25-27***, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In **Claims 9,10 & 12**, In line 2, Claims 9 and 10 respectively recite "power level". In line 2, Claim 12 recites "average power level." There is improper antecedent basis for said recitations.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 20 and 21** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### **Claims 20 & 21**

Line 2 of claims 20 and 21, respectively recite "microphone at an event" and "speaker at an event". It is not clear what the Applicant means by the recitation "*at an event*". Clarification and/or correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-6,11 and 13-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Taenzer et al. (US 6,631,196)** in view of **Fretz (US 6,275,596)**.

**Regarding claim 1,**

**Figure 1** of Taenzer teaches a hearing enhancement system for a user comprising: an interface unit (100) that has a directional speaker (108) and a microphone (116) (see *column 7, lines 56-59*); wherein the microphone receives input audio signals, which are transformed into ultrasonic signals, see *column 8, lines 51-53*; the speaker transmits the ultrasonic signals, see *column 7, lines 5-6*; and at least a portion of the ultrasonic signals is transformed into output audio signals in air, see *column 7, lines 24-28*.

Taenzer does not clearly teach that a portion of the input audio signals is amplified more than another portion to enhance the hearing of the user.

In *column 4, lines 52-67, column 5, lines 2-5, lines 10-12 and lines 34-41*, Fretz teaches that a portion of the input audio signals is amplified more than another portion to enhance the hearing of the user.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the tubing (114) of Taenzer, per the teachings of Fretz, for the

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purpose of shaping the frequency response and affecting the frequency gain of the output signal.

**Regarding claim 2,**

In *column 7, lines 8-13*, Fretz teaches that amplification occurs to high frequency range signals, corresponding to “wherein the amplification is frequency dependent” recitation.

**Regarding claim 3,**

In *column 7, lines 8-13*, Fretz teaches that gain is only applied to soft sounds in the high frequency range, which corresponds to the claimed recitation, “wherein the amplification focuses on higher audio frequencies.

**Regarding claim 4,**

Fretz’s teaches in *column 7, lines 8-13*, that gain is only applied to soft sounds in the high frequency range, thereby implying that “certain frequencies of the input audio signals are not amplified”, as claimed.

**Regarding claim 5,**

Fretz’s amplification of a certain frequency range due to the user’s inability to hear sounds within said range, corresponds to the claimed recitation, “wherein the amplification depends on at least one characteristic of the hearing of the user”.

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**Regarding claim 6,**

The identification of those frequencies to be amplified for a specific wearer, as taught by Fretz, is inherently determined through calibration by an audiologist, as is well understood in the art.

**Regarding claim 11,**

In *column 8, lines 39-40*, Fretz teaches a hearing enhancement system as recited in claim 1, wherein the microphone is a directional microphone.

**Regarding claim 13,**

The combined disclosures of Taenzer and Fretz fail to clearly teach a hearing enhancement system as recited in claim 1, wherein the system further includes a rechargeable battery. However, the Examiner takes *Official Notice* that providing hearing enhancement devices with rechargeable batteries is well known in the art and would have been obvious for the purpose of not inconveniencing the wearer with having to replace the battery.

**Regarding claim 14,**

In *column 8, lines 38-50*, Taenzer teaches that the hearing device may function as a two-way communicator and in connection with a cellular telephone network, which corresponds to the recitation, "wherein the system also can function as a phone", as broadly claimed.



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**Regarding claim 15,**

In **Figure 5**, Taenzer teaches that the system includes more than one directional speaker (506,510), and in *column 11, lines 63- column 12, line 5*, teaches an ultrasonic transducer (506) and a second ultrasonic transducer (510) which produces an output at a frequency of the ultrasonic signal and which has been frequency offset with the audio signal via frequency offset block (504), an amplifier (512) and a filter (514), reading on "the phases of the ultrasonic signals driving at least two of the speakers differ by a preset value."

**Regarding claim 16,**

In *column 8, lines 38-50*, Taenzer teaches that the system can also access audio signals from another instrument through a wire or wirelessly through a wireless local area network.

**Regarding claim 17,**

In *column 8, lines 38-50*, Taenzer teaches that the another instrument is a portable instrument.

**Regarding claim 18,**

In *column 6, lines 54-56*, Taenzer teaches that the another instrument is an entertainment unit, as broadly claimed.

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**Regarding claim 19,**

*In column 8, lines 38-50, Taenzer teaches that the instrument is a phone.*

**Regarding claim 20,**

*As best understood with regard to the USC 112 second paragraph rejection, above, Taenzer appears to teach that the instrument is related to a microphone at an event.*

**Regarding claim 21,**

*As best understood with regard to the USC 112 second paragraph rejection, above, Taenzer appears to teach that the instrument is related to a speaker at an event.*

**Regarding claim 22,**

Taenzer teaches a hearing enhancement system for a user comprising: a directional speaker (108,506,510); a microphone (116); and a computing unit (102,106,110), as broadly claimed, operatively coupled to the directional speaker and the microphone, wherein the microphone receives input audio signals, and the computing unit transforms the input audio signals into modified audio signals (see, *column 8, lines 51-53*) and provides the modified audio signals to the directional speaker, wherein the directional speaker outputs ultrasonic signals based on the modified audio signals.

Taenzer does not teach that the computing unit modifies certain frequencies differently than other frequencies to enhance the ability of the user to hear the input audio signals.

In *column 4, lines 52-67, column 5, lines 2-5, lines 10-12 and lines 34-41*, Fretz teaches that certain frequencies are amplified i.e., modified, more than another portion to enhance the hearing of the user.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the tubing (114) of Taenzer, per the teachings of Fretz, for the purpose of shaping the frequency response and affecting the frequency gain of the output signal.

**Regarding claim 23,**

In *column 7, lines 24-28*, Taenzer teaches a hearing enhancement system as recited in claim 22, wherein at least a portion of the ultrasonic waves output by the directional speaker are transformed into output audio signals in air.

**Regarding claim 24,**

Taenzer does not clearly teach that the speaker is attachable to the clothing worn by the user so as to direct the ultrasonic waves towards at least one ear of the user. However, Taenzer does not restrict to any particular location for the speaker, but teaches in *column 7, lines 13-18*, that the transducer or transducers may be configured for positioning within the ear canal, behind the ear OR in any other convenient location near or in a user's ear. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to configure the speaker of Taenzer such that it is

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attachable to the clothing worn by the user such as a hat, eyeglasses or shirt, as either of these locations will be in proximity to a human ear canal such that the human ear canal will receive the audio signal as airborne ultrasonic energy.

**Regarding claim 25,**

Taenzer teaches the hearing enhancement system as recited in claim 22. Taenzer fails to clearly teach that the computing unit (102,103,106) is integral with the directional speaker. However, Taenzer does not restrict to any particular structural implementation of the computing unit (102,103,106). The Examiner takes *Official Notice* that it is well known in the art and would have been obvious to utilize a speaker unit wherein the computing unit (signal modifying electronics) are integrated within the magnetic circuit of the speaker unit.

**Regarding claim 26,**

In *column 8, lines 43-48*, Taenzer teaches that a sound processing unit, corresponding to "computing unit" of the claim, may have signals transmitted wirelessly thereto, which reads on "operatively couples with the directional speaker over a wireless link".

5. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Taenzer et al. (US 6,631,196)** in view of **Fretz (US 6,275,596)**, as applied to claim 1, and further in view of **Slavin (US 4,622,440)**.

**Regarding claim 8,**

The combined disclosures of Taenzer and Fretz teach a hearing enhancement system as recited in claim 1. Said combined disclosure does not clearly teach that the system can be activated depending on at least one word said by the user.

In **claim 6**, Slavin teaches a hearing aid provided with a voice-operated switch for actuating the hearing aid device in response to an audio input.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the combined teachings of Taenzer and Fretz, per the teachings of Slavin, for the purpose of facilitating easy activation of the hearing device.

6. **Claims 7, 9, 10 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Taenzer et al. (US 6,631,196)** in view of **Fretz (US 6,275,596)**, as applied to claim 1, and further in view of **Marx (US 4,955,729)**.

**Regarding claim 7;**

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The combined disclosures of Taenzer and Fretz teach a hearing enhancement system as recited in claim 1. Said combined disclosure does not clearly teach that the system can be de-activated by the user.

In *column 7, lines 28-40*, Marx teaches a hearing enhancement system as recited in claim 1 wherein the system is turned off when the user places the hearing device in a stationary place, thus reading on "can be de-activated by the user."

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the combined teachings of Taenzer and Fretz, per the teachings of Marx, for the purpose of conserving the power source of the device, when not in use.

**Regarding claims 9 and 10,**

*As best understood with regard to the USC 112 second paragraph rejection, above*, the combined disclosures of Taenzer and Fretz teach a hearing enhancement system as recited in claim 1. Said combined disclosure does not clearly teach that depending on the *sound pressure level/average sound pressure level* of the input audio signals, the system can be in a standby mode.

In *column 5, lines 30-36 and lines 50-60*, Marx teaches a hearing device provided with a switch (9), which responds to the sound pressure of an incoming signal to switch the hearing device off. Since Marx doesn't explicitly disclose a user actuated "on" switch, but implies that the hearing device will continue to function whenever a particular switching characteristic is not met, said state of inactivity as caused by the

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switch (9) is interpreted as corresponding to the "standby mode" as recited in the claims.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the combined teachings of Taenzer and Fretz, per the teachings of Marx, for the purpose of limiting the wearer's exposure to undesirable feedback signals.

**Regarding claim 27,**

Marx teaches a reduced power mode and a normal power mode, and wherein the device can be automatically switched between the power modes based on the detected sound pressure, which reads on "at least one characteristic of the input audio signals", thereby reducing power consumption by the computing unit.

7. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Taenzer et al. (US 6,631,196)** in view of **Fretz (US 6,275,596)**, as applied to claim 1, and further in view of **Charpentier (US 5,321,758)**.

**Regarding claim 12,**

*As best understood with regard to the USC 112 second paragraph rejection, above, the combined disclosures of Taenzer and Fretz teach a hearing enhancement system as recited in claim 1. Said combined disclosure does not clearly teach that the amplification is reduced or limited if the average *sound pressure* level of the input audio signals is higher than a preset threshold.*

In *column 4, lines 19-30*, Charpentier teaches that for a given amplification profile, certain frequencies are no longer amplified when the *sound pressure* level for detected ambient sounds exceed a predetermined threshold.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the combined teachings of Taenzer and Fretz, per the teachings of Charpentier, for the purpose of saving power and increasing speech intelligibility.

### Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**O'Brien (US 2004/0202339)** teaches a rechargeable battery in a hearing enhancement device.

**Bilan (US 6,243,472)** teaches a speaker with integrated signal modifying components.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne H. Pendleton whose telephone number is 571-272-7497. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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